

STRUCTURE BULLETIN

NCDOT Construction Unit

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Current Issues: 2018 Post Tensioning Jacks

Regarding post tensioning strands in cored slabs and box beams Section 430-6(C) of the 2018 Standard Specifications states: "Position the jack and tension along the same axis as the strand. Utilize a double acting jack which tensions the strand and properly seats the wedges after achieving tension."

This is a change from the previous version of the specifications. An example of this type of jack is shown above. The advantages are:

- The jack head rests against the collar (above left), ensuring that the entire prestressing load is transferred to the strand.
- It ensures that the strand is loaded axially, and is safer to use in skewed situations than jacks we have used in the past.
- These jacks also eliminate the need to set the wedges by hand by automatically setting the wedges at the end of the stroke cycle. This reduces the chance of losing a portion of the tension as the load is released.

Any project let in 2018 requires the use of this type jack. You should discuss this requirement with the contractor well in advance of setting precast units.

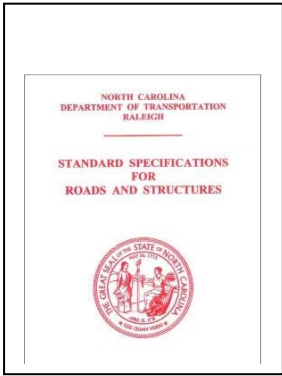


Corroded guardrail against concrete post

Aluminum vs. Concrete:

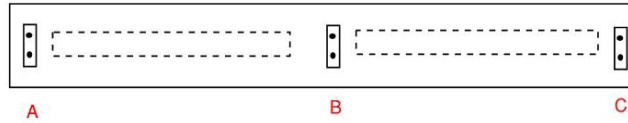
In multiple locations the Standard Specifications warn not to use aluminum components, tools, or forms on or in contact with concrete. Aluminum rail it is supposed to have a layer of caulk between the post and the concrete. This is due to a chemical reaction between the aluminum and alkalis in the mix. It produces hydrogen gas which can cause the concrete to expand and crack and can caused accelerated corrosion of the aluminum.

Continued next page.



Special Provision Questions:

Question: Is the contractor required to tension both strands in a single diaphragm of a box beam simultaneously?



Answer: Section 430-6(C) of the Standard Specifications states: "At each diaphragm location, maintain a symmetric tension force between each pair of strands in the diaphragm."

We do not require the contractor to have two jacks, one set up on each strand at the same time. The contractor may tension one strand, move to the second and tension it, then move back to the first strand to insure the tension still meets the specifications, or 43,950 lb.

In situations where there are two diaphragms along the length of the slab you can tension them separately in any order. If there are three diaphragms along the length of the slab it is good practice to tension the center one first (B), then tension the other two (A&C).

Aluminum vs. Concrete: Continued

This can be accelerated further if there is contact between the aluminum and reinforcing steel. If you have an aluminum culvert and it shows being embedded in a concrete headwall there should be a barrier between the aluminum and the concrete. In the future this should be caught in the submittal process and addressed there, but if not the contractor should provide such a barrier. Acceptable materials would be a spray-on undercoat or bed liner type material.

If you have any questions about this or other acceptable barriers, contact your Area Construction Engineer.

Dates for 2018 Winter Inspector Training

Div	Dates	Contact
1	Mar. 7-8	Randy Hall
2	Mar. 5-6	Randy Hall
3&4	Feb. 14 - 15, 27	David Candela
5	Mar. 27 - 28	Troy Brooks
6	Feb. 28 - Mar. 1	John Partin
7	Feb 21-22	Aaron Griffith
8	Mar. 12 - 13	John Partin
9	Feb. 20-22	Vickie Davis
10	Jan. 30 - Feb 1	Darin Waller
11&12	Feb. 12-13	Brian Skeens
13	Mar. 20-21	Aaron Powell
14	Mar. 7-8	Aaron Powell

If you have a topic you would like to see addressed in a future edition of the Structure Bulletin please [email](mailto:acochan@ncdot.gov) us at either acochan@ncdot.gov or aeerwood@ncdot.gov